EN

User Manual

1/3” HD-TVI Camera, Day&Night, 1920x1080, WDR, 10x AF Zoom, Infrarot, 12/24V

TVB-2080Z10IR

Safety Precaution

- To prevent fire or shock hazard, do not expose the unit to rain or moisture.
- To prevent electric shocks and risk of fire hazards, do NOT use other than specific power source.

CAUTION
RISK OF ELECTRIC SHOCK .
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The symbol is intended to alert the user to the presence of important operating and maintenance(servicing) instructions in the literature accompanying the unit.

- **Warning** :
  This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

- **Caution** :
  Any changes or modifications in construction of this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
  Mains power quality should be that of a typical commercial environment. If the user of the model requires continued operation during power mains interruptions, it is recommended that the model be powered from an uninterruptible power supply (UPS) or a battery.

Safety Precaution

NOTICE

- The image used in this instruction manual are processed to help comprehension and may differ from actual video of the camera.
- Avoid installing areas where has shock or vibration which results in the problems.
- Pay attention to safety when laying the connection cable and observe that the cable is not subjected to heavy loads, kinks or damage and no moisture can get in.
- Never open the device such as boards or lens.
  The warranty becomes void if repairs are undertaken by unauthorized persons.
- Maintenance and repair have to be carried out only by authorized service centers.
- Use only a mild detergent to clean the housing.
- The camera should never be operated beyond the technical specifications.
  This can lead to destruction.
- The camera should never be operated in water.

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Features

Key Features

- Full HD, 2Mega Pixel HD-TVI CAMERA, 1920x1080(30p/25p)
- TVI Video Transmission Distance over Coax.; 500M (RG59, 75Ω)
- Automatically removable IR Cut filter by Dual filter switcher
- Built-in f=5.1~51mm, F1.6~F1.8 Day & Night zoom lens
  (Optical 10x Auto focus zoom / Digital 32x zoom)
- True WDR(Wide Dynamic Range)
- Improved Noise figure with the enhanced 2D+3DNR
- Preset Zoom
- Home Position setting
- Intelligent Motion Detection, Privacy Mask
- Lens Refresh, E.Zoom, Flickerless, BLC, HLC, H/V/HV Mirror,
  Defog, Freeze, Defect Detection, DSS(Sens-up), ACE(D-WDR),
  Sharpness, HD Format
- ID / TITLE / INITIAL MESSAGE / ZOOM RATIO DISPLAY
- Enhanced Sensitivity by DSS technology
- Improved DIS(Digital Image Stabilization) function
- Selectable Digital output 1080p or 720p
- OSD menu & Video sub-out for easy installation & maintenance.
- Circuit protection against faulty connection in power polarity
- Isolated power supply against ground loop problem
- Remote control via RS-485 (Pelco-C/Hikvision)
- UTC Control through HD-TVI DVR
- Built-in 4pcs High-power LED
- Dual Window
- One-touch 3-Axis locking bracket, Easy Installation Pad
- IP67 Protection
- AC24/DC12V Dual power

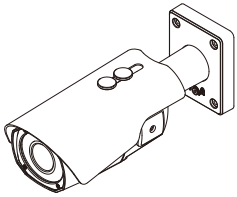
Features

General Description

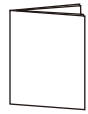
This camera realizes the natural and crisp image as you see the scene in front of you by adopting Auto Focus Full HD(1920x1080p) camera module.
Highly detailed pictures can be achieved and color reproducibility deserves attention.

- With ICR mechanism,
  - Enhances its sensitivity about 10x at night time
  - Can accepts the infrared light
- With 24VAC/12VDC dual power design,
  - Offers the flexibility of installation
  - Ensures the reliability

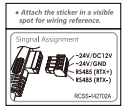
Composition



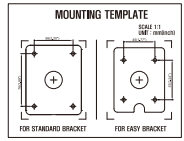
Camera



Operating Instruction



Cable Signal Sticker



Mounting Template

Plastic Anchor:
6 x 30mm (4pcs)

Mounting Screw:
4 x 30mm (4pcs)

Assembly Screw:
4 x 14mm (4pcs)

Torque Wrench:
3mm (1pc)

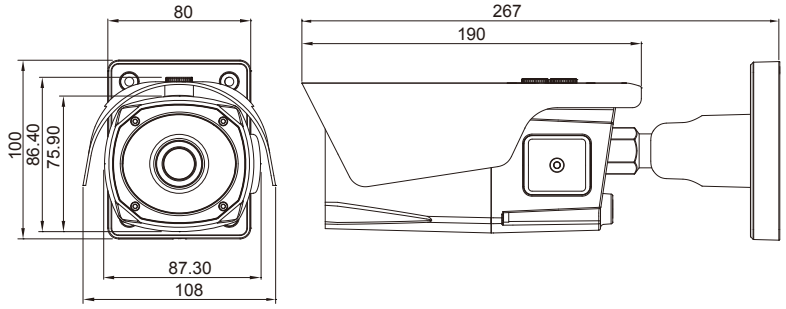
Wiring Connector:
(1pc)

Video Sub-out Cable (1pc)

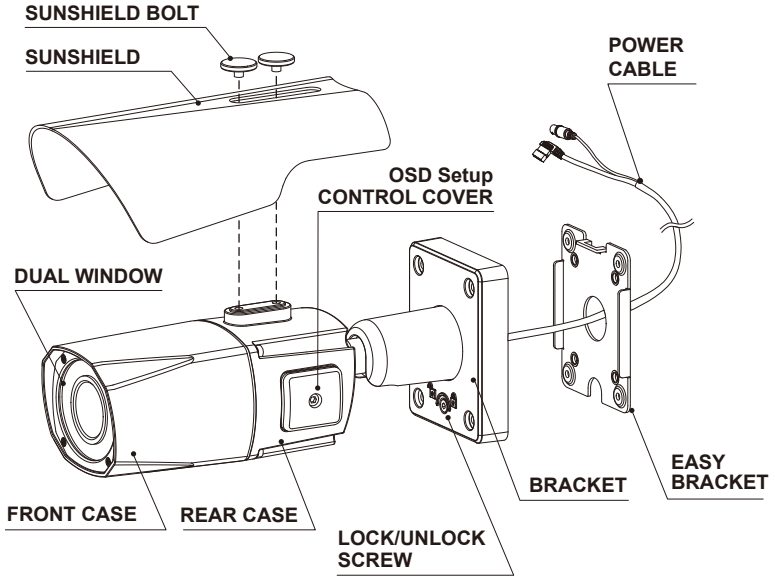
Easy Bracket

Dimensions

(unit : mm)

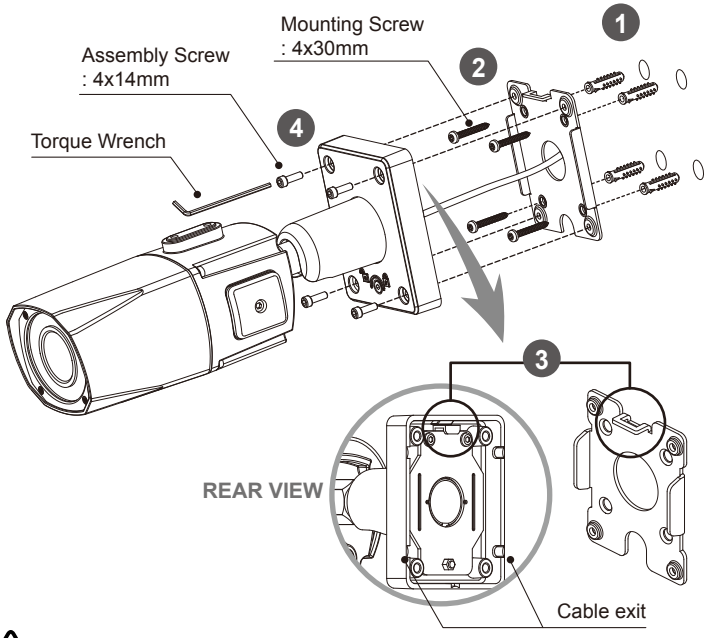


Part Names



Installation Instructions

1. Locate the mounting template at the installation position and drill the ceiling or wall if needed. (*The easy bracket can not be installed on the ceiling)
2. Place the easy bracket on pre-drilled position and fix it through using mounting screws(4x30mm). Skip this step when an easy bracket is not installed.
3. Route the power cable to the connecting place.
   Hook up the camera bracket with the easy bracket as illustrated below.
4. Fix the camera bracket through using assembly screws (4x14mm).
5. Set the camera's viewing angle.
6. Put the sunshield to the camera unit and tighten the sunshield-bolts.



CAUTION

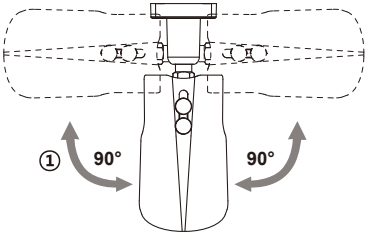
- Extreme care should be taken NOT to scratch the window in front of lens.
- Care should be taken the cable is NOT to be damaged, kinked or exposed in the hazardous area.
- Do not expose the camera directly to a strong light source such as the sun or spot light.

Installation Instructions

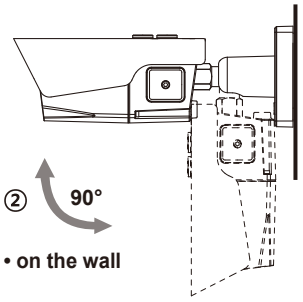
Pan & Tilt adjustments

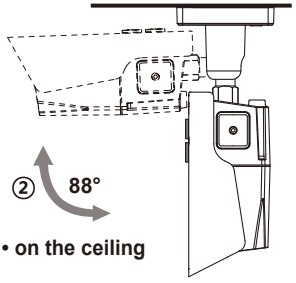
- Unlock the screw on the camera bracket through using the torque wrench supplied
- Set the camera's viewing angle then lock the screw on the bracket.

1) Pan limit:
Pan is limited to +/- 90°.

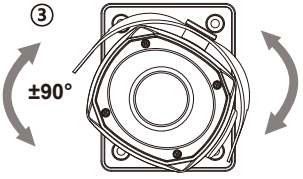


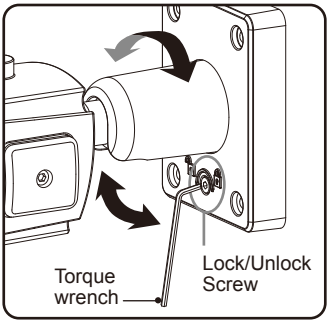
2) Tilt limit:
Tilt is limited to 0°(2°) min ~ 90° max. for wall(ceiling) installation respectively with reference to the wall(ceiling) when the inclination of camera module is 0°, that is, the image is aligned horizontally.





3) Inclination limit
(Horizontal image alignment):
Inclination limited to +/-90° max.





■ **Adjustment of viewing angle with a bracket**

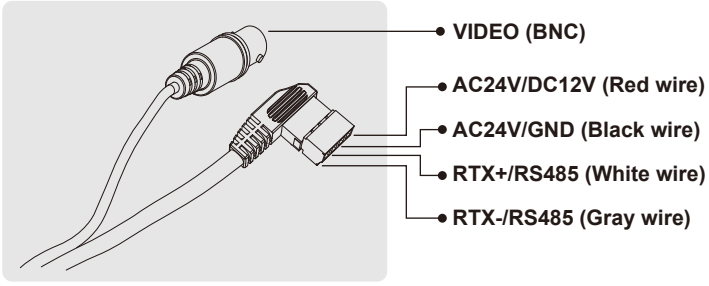
Installation Instructions

Installation and commissioning Instructions

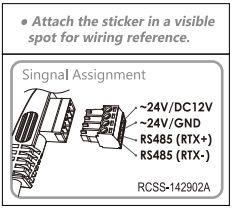
- Make sure the power is removed before the installation.
- Follow the order for applying power.
  First, connect the low voltage (AC24V or DC12V), then plug the AC adapter to AC outlets to avoid an improper reset from power jitter and a damage from the surge voltage when no load.

Power Supply Connections

Camera can work with either 24VAC or 12VDC, dual voltage power.
Primary and secondary grounds are completely isolated to avoid the possible ground-loop problems



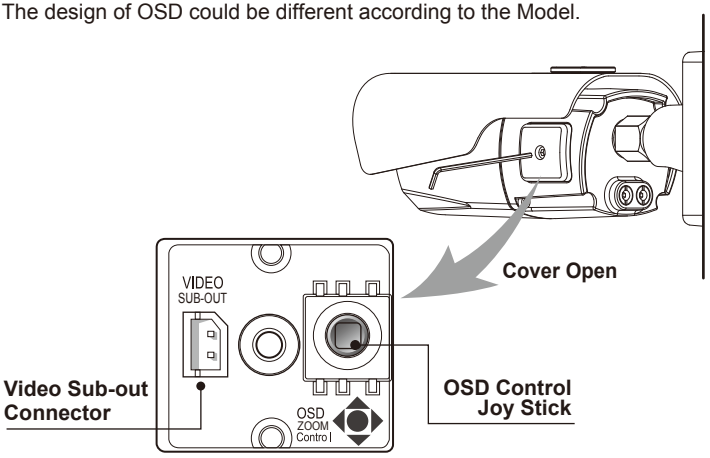
※ Attach the Signal Assignment Sticker in a visible spot for wiring reference.



Operating Instructions

Using OSD controller

Setup menu can be accessed and controlled by OSD control joy stick on the side of camera unit.
Five commands are available with the joy stick.
The design of OSD could be different according to the Model.



Description of the joystick operation

1) SET Key (●) : Access to the menu or enter the setting.
   To enter the main menu, press the Set Key down for about 1.5sec
2) UP/DOWN Key (▲/▼) : Choose the desired sub-menu and to move the cursor up or down.
3) LEFT/RIGHT Key (◄/►) : Set up the value of the selected menu. Used to adjust the desired menu selection and to move the cursor left or right.
4) ' ' denotes the long press down straightly for about 2 seconds

Description of the ZOOM&FOCUS* adjustment

(*) Works only when OSD Menu is inactive.
Set to E-ZOOM ON for Digital zoom control.

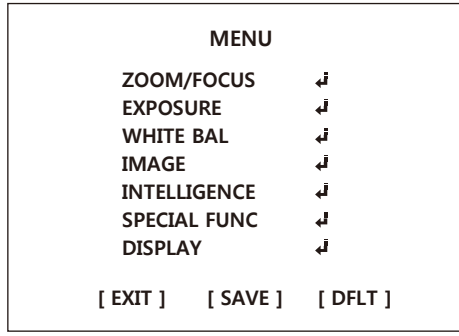
1) ▲ : Zoom In
2) ▼ : Zoom Out
3) ◄ : Focus Near
4) ► : Focus Far

Operating Instructions

OSD menu Startup

Press ‘ ’ OSD MENU key down to access the setup menu mode.

- EXIT : Exits the setup menu without save.
- SAVE : Saves the menu settings.
- DFLT : Reset to the factory defaults.
- BACK : Go back to the previous menu.



OSD menu Table

MAIN MENU	SUB MENU	CONFIGURATION		
ZOOM/FOCUS	FOCUS	AUTO, ONE PUSH, MANUAL		
	DISTANCE	0.1m, 1.0m, 3.0m, 5.0m, 10.0m		
	ZOOM SPEED	0~7		
	LENS REFRESH	ONE PUSH		
		1DAY~10DAYS		
	E.ZOOM	OFF, max. x2~x19, x21, x23, x25, x28, x32		
	ZOOM PRESET	PRESET	1~5	
		MODE	OFF, ON	
	HOME POSITION	OFF/ON	DWELL TIME	3sec~60sec
EXPOSURE	MODE	AUTO/ IRIS.P/ SHUT.P/ MANUAL		
	AGC	OFF/ON (0~10)		
	SHUT SPEED	30/25fps] x4, x2, 1/30(25), 1/60(50), 1/120(100), 1/250~1/30,000sec *60/50fps] x8, x4, x2, 1/60(50), 1/120(100), 1/250~1/30,000sec		
	IRIS	0~20		

Operating Instructions

EXPOSURE	DSS	30/25fps] OFF/ x2, x4 *60/50fps] OFF/ x2, x4, x8		
	FLICKERLESS	OFF/ON		
	BRIGHTNESS	0~20		
	BLC/WDR/HLC	OFF		
		WDR	LEVEL	MID-HIGH, HIGH, LOW, MID-LOW,MIDDLE
		BLC	POSITION, SIZE	0~20
		HLC	LEVEL(0~20), COLOR(0~13)	
	DAY&NIGHT	AUTO	DELAY	0~255sec
			THRS	0~28
			GAP	LOW, MID-LOW, MIDDLE, MID-HIGH, HIGH
			IR DETECTION	OFF, ON
			IR DET LEVEL	LOW, MID-LOW, MIDDLE, MID-HIGH, HIGH
			BURST	OFF, ON
		EXT-IN	DELAY	0~255sec
			BURST	OFF, ON
			POLARITY	ACTIVE LOW, ACTIVE HIGH
		DAY		
		NIGHT	BURST	OFF, ON
WHITE BAL	MODE	AUTO, ONE PUSH, MANUAL, INDOOR, OUTDOOR		
	RED GAIN	0~20 (control only in MANUAL mode)		
	BLUE GAIN	0~20 (control only in MANUAL mode)		
	CHROMA	0~20		
IMAGE	DNR	OFF, LOW, MIDDLE, HIGH, AUTO		
	MIRROR	OFF, H, V, H&V		
	SHARPNESS	0~10		
	ACE	OFF, LOW, MIDDLE, HIGH		
	DEFOG	OFF/ON	MODE	AUTO, MANUAL
			LEVEL	LOW, MIDDLE, HIGH
	FREEZE	OFF, ON		
	GAMMA	0.45/ 0.55/ 0.65/ 0.75		
INTELLIGENCE	PRIVACY	OFF/ON	MASK	1~24
			MODE	OFF, ON
			POSITION	
			SIZE	

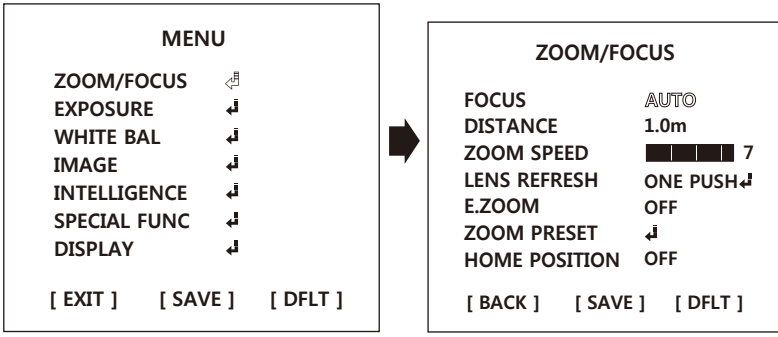
Operating Instructions

INTELLIGENCE	PRIVACY	OFF/ON	COLOR	0~13
			TRANS	0~4
	MOTION	OFF/ON	AREA#	1~3
			MODE	OFF, ON
			SENSITIVITY	0~20
			POSITION	
			SIZE	
			INTERVAL	0~255
			DWELL TIME	0~255
			ZOOM PRESET	OFF, ON
	DIS	OFF/ON	RANGE	10%, 20%, 30%
			FILTER	LOW, MIDDLE, HIGH
			AUTO C	OFF, HALF, FULL
SPECIAL FUNC	DEFECT			
	IMAGE RANGE	FULL		
		COMP		
		USER	LEVEL (0~32)	
	SYSTEM	NTSC(30/60fps) or PAL(25/50fps)		
	HD FORMAT	1080p /30(25)fps, *1080p /60(50)fps, 720p/30(25)fps, *720p/60(50)fps		
	COMM	ID, BAUD RATE, PROTOCOL		
DISPLAY	DISP SEL	OFF/ON	ID, TITLE, ZOOM RATIO, SYSTEM MSG	
	SET TITLE			
	INIT SEL	OFF/ON	ID, BAUDRATE, PROTOCOL, VERSION, INIT MSG	
	SET INIT MSG			
	LANGUAGE	ENGLISH, Simplified CHINESE, Traditional CHINESE, JAPANESE		

(*) Not Supported

Operating Instructions

OSD menu Setup



1. ZOOM/FOCUS

1-1. FOCUS (default: AUTO)

: AUTO, ONE PUSH and MANUAL modes are available for focusing.

- AUTO: Focusing is always working.
- ONE PUSH: Focusing is activated only when pressing the SET key on OSD control.
- MANUAL: Focusing can be adjusted by ▲,▼ of OSD control joystick or the remote control.

1-2. DISTANCE (default: 1.0m)

: Set the minimum distance in focus between camera and objects. Select from 0.1m to 10.0m

1-3. ZOOM SPEED (default: 7)

: Set the zoom speed from 0(slow) to 7(fast)

1-4. LENS REFRESH (default: ONE PUSH)

: Lens origin calibrated automatically. ONE PUSH and ON modes are available.

- ONE PUSH: Lens refreshing is activated only when pressing the SET key on OSD control.
- 1~10days: Can be set from 1 to 10 days and performs the scheduled LENS Initialization automatically. Every initialization occurs when the time reaches the scheduled time after setup or power up. When LENS REFRESH initiates LENS Initialization, a notification 'LENS INITIALIZING…' appears on the monitor.

Operating Instructions

1-5. E. ZOOM (default: OFF)

: E-ZOOM is available up to 32x. It starts working when the optical zoom reaches its maximum tele-position. Zoom ratio is displayed on the right bottom corner of the monitor if DISPLAY>DISP SEL>ZOOM RATIO is set to ON.

※ *If the motion detection is turned on, E.ZOOM function is inactivated.*

1-6. ZOOM PRESET

: Set the ZOOM PRESET. Able to Zoom in for the preset area by PTZ controller.

- PRESET # : Set a number to select a zoom preset up to 5. It works when the MODE menu is set to ON.
- MODE: Set to ON, the ZOOM function is activated as PRESET number setting and zoom position can be adjusted.

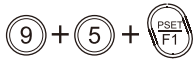
1-7. HOME POSITION

: Camera can be configured to return to pre-defined Zoom position automatically after certain period since ZOOM IN/OUT control is accomplished.
Set the optical zoom position as HOME POSITION in OSD controller or PTZ controller.

- DWELL TIME: When ZOOM IN/OUT control is accomplished, camera returns to pre-defined Zoom position after Dwell time.

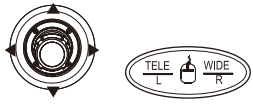
TIP ***Setting for Zoom Function with PTZ Controller***

- Enter the MENU :
  Press buttons 9+5+PSET (PRESET)



- Set the Preset Zoom :
  Press buttons 1(or ~5)+PSET (PRESET)

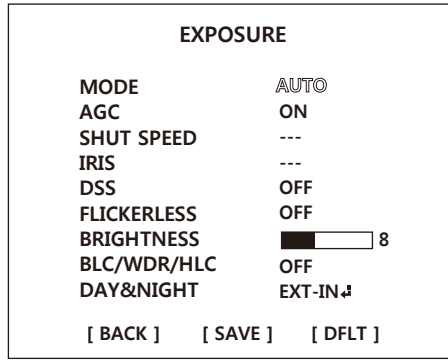
- Move the cursor in the MENU :
  Moves UP/DOWN/LEFT/RIGHT Joy stick



- Zoom IN: Press button TELE or Spin the joystick to clockwise.
- Zoom OUT: Press button WIDE or Spin the joystick to counter-clockwise.
- Select or Choose value in the MENU: Press button OPEN (IRIS OPEN)

Operating Instructions

2. EXPOSURE



2-1. MODE (default: AUTO)

: Can set EXPOSURE MODE to AUTO, IRIS P, SHUT. P, and MANUAL.

- AUTO: Optimizes the video level by controlling the iris and the shutter speed automatically.
- IRIS P: If you set to IRIS.P mode, it can be adjusted IRIS value.(refer to 2-4.IRIS) Selects to fix IRIS in a certain apperture and the video level is controlled by an automatic shutter control. Too much low IRIS LEVEL will result in the foggy video by the diffusion from the lens iris.
- SHUT. P: Selects to fix SHUTTER speed in a certain speed and the video level is controlled by an automatic iris control. If you set to SHUT.P mode, it can be adjusted SHUT SPEED value. (refer to 2-3.SHUT SPEED) This mode is useful when the color rolling occurs under the fluorescent lighting. It is not recommendable at outdoor in the daytime.
- MANUAL: Iris, Shutter speed and AGC can be set manually.

2-2. AGC (default: ON)

: Set the Auto Gain Control. If you set to AUTO, SHUT.P or IRIS.P in the MODE menu, it can be selected OFF or ON.
If set to MANUAL in the MODE menu, it can be adjusted from 1 to 10 levels.
AGC amplifies the video gain for brighter video but noise and white pixel accordingly.

2-3. SHUT SPEED

: It can be set in SHUT.P or MANUAL mode. Selects shutter speed level.

Operating Instructions

• 60/50fps (Not Supported)
: x8, x4, x2, 1/60(50),1/120(100), 1/250, 1/700, 1/1000, 1/1600, 1/2500, 1/5000, 1/7000, 1/10000, 1/30000sec

• 30/25fps : x4, x2, 1/30(25), 1/60(50), 1/120(100), 1/250, 1/700, 1/1000, 1/1600, 1/2500, 1/5000, 1/7000, 1/10000, 1/30000sec

2-4. IRIS

: It can be set in IRIS.P or MANUAL mode. Selects iris value from 0 to 20.

2-5. DSS (Digital Slow Shutter) (default: OFF)

: Sets the maximum digital slow shutter speed. It can be controlled in AUTO, IRIS.P modes

• 60/50fps (Not Supported) : OFF, x2, x4, x8

• 30/25fps : OFF, x2, x4

2-6. FLK LESS (default: OFF)

: This function is used to remove the flickering on screen due to differences in light and electric frequencies. Selects OFF or ON.

2-7. BRIGHTNESS (default: 8)

: Adjusts the brightness valur of video from 0 to 20.

2-8. BACK LIGHT (default: OFF)

: Select WDR(Wide Dynamic Range) , BLC(Back Light Compensation) or HLC(High Light Compensation) functions.

2-8-1. WDR(Wide Dynamic Range):

: This function is extended the gain range of the screen that is mostly useful if camera takes a simultaneous picture of both indoor and outdoor nearby window. It improves contrast of the picture in outdoor scenery as well as indoor. Video outputs image processed from two images by dual shutter (long and short shutter) in a field to provide the best dynamic range. Highlight area is compensated by the short shutter and dark area is compensated by the long shutter.

• LEVEL (default:MIDDLE)
: Adjust WDR level. LOW, MID-LOW, MIDDLE, MID-HIGH, HIGH

※CVBS video signal:Connecting 2nd video to CVBS port disables D-WDR function temporary. It should be considered when installer adjusts the video with installation monitor via CVBS video signal.

Operating Instructions

2-8-2. BLC (Back Light Compensation):

: This function is used to brighten an image in the foreground with a highly light area behind it such as sunlight, limiting the affect of silhouette.

- POSITION: Adjust the window position
- SIZE: Adjust the window size

※ *BLC function is inactivated in MANUAL mode of EXPOSURE menu.*

2-8-3. HLC (High Light Compensation):

: HLC(High Light Compensation) function is used to black out highlighted areas, in order to enable a clear visual image of objects, such as the license plates of an oncoming vehicle or other objects that may be obstructed by headlamps. HLC clips out the highlight area and masks it as black color.
Video will be masked for the area which exceeds LEVEL.

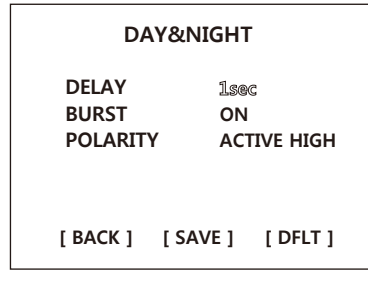
- LEVEL: Can set the highlight value from 0 to 20 for HLC working.
- COLOR: Can set the masking color on the highlight area.
  0 is Black, from1 to 6 are Gray scale,
  7 is White,
  8 is Red,
  9 is Green,
  10 is Blue
  11 is Blue-green
  12 is Yellow
  13 is Magenta

2-9. DAY & NIGHT

: This function is used to control the setting during day-time and night-time operation.

2-9-1. EXT-IN

: The camera switches DAY from/to NIGHT automatically using the detected brightness level by photocell.

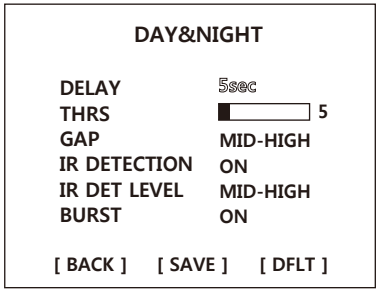


- DELAY:
  It is time in second while camera maintains its status before Day ↔Night switches. DELAY can avoid the unwanted/frivolous switching by a short term lights such as light from the passing car.

• BURST:
It determines whether a color burst signal keeps output or eliminated when camera switches to B/W. If set to ON, B/W video signal contains color burst signal and is compatible with the color equipment but shows the same resolution as color video. If set OFF, the color burst signal is removed from B/W video and shows better resolution but rarely the compatibility problem may occur with the color equipment.

• POLARITY: Setting external input polarity. ACTIVE HIGH or ACTIVE LOW

2-9-2. AUTO
: The camera switches DAY from/to NIGHT automatically along with the amount of light through the lens.



• THRS:
Set the level of brightness between Day↔Night switching level in AUTO mode. Switching in lower lux with higher threshold level.

• GAP:
Set the margin of brightness between switching of the color and BW. If set to LOW, the screen fluctuation may occur. LOW, MID-LOW, MIDDLE, MID-HIGH, HIGH are available.

• IR DETECTION : Sets ON or OFF

• IR DET LEVEL : Sets IR Detection level. LOW, MID-LOW, MIDDLE, MID-HIGH, HIGH

• BURST: It determines whether a color burst signal keeps output or eliminated when camera switches to B/W.

2-9-3. DAY : The camera is always in Color mode.

2-9-4. NIGHT: The camera is always in B/W mode.

3. WHITE BALANCE

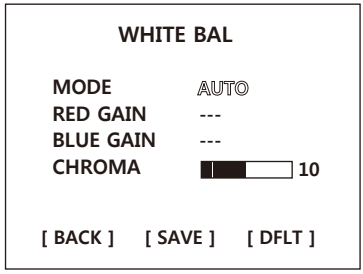
3-1. MODE (default: AUTO)

: Can set AUTO, ONE PUSH, MANUAL, INDOOR and OUTDOOR

• AUTO: Automatically tracks the changes of color temperature and continuously adjusts the white balance.

Operating Instructions

- ONE PUSH: It is a fixed white balance mode that may be automatically readjusted only by pressing 'ONE PUSH'.
- MANUAL: This mode allows the white balance to be adjusted manually with Red Gan, Blue Gain and Chroma.
- INDOOR: Set color temperaure to be optimized of indoor conditions.(3700°K)
- OUTDOOR: Set color temperature to be optimized of outdoor conditions. (5100°K)



3-2. RED GAIN

: Can be adjusted the color level by RED GAIN value.

3-3. BLUE GAIN

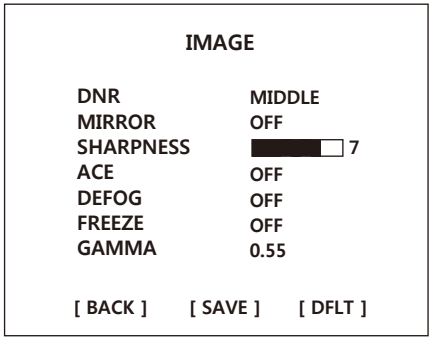
: Can be adjusted the color level by BLUE GAIN value.

※ *R-GAIN and B-GAIN are only activated in MANUAL mode.*

3-4. CHROMA

: Can be adjusted the color saturation by CHROMA value from 0 to 20.

4. IMAGE



4-1. DNR (default: MIDDLE)

: DNR(Digital Noise Reduction) function improves picture quality by filtering out signal noise which is generated under the low light conditions.
Setting high level is strength of noise reduction but the result may occur in loss of sharpness and the tail effect of a comet.

Operating Instructions

- AUTO: DNR works automatically according to low light conditions.
- OFF: Enables DNR function.
- LOW/MIDDLE/HIGH: Sets the DNR level.

4-2. MIRROR (default: 7)

: Reverses the video signals left, right and/or up, down.

- OFF : Normal display without mirroring or flipping
- H : Video signal is reversed left and right
- V : Video signal is reversed upside down
- H&V : Video signal is reversed horizontally and vertically.

4-3. SHARPNESS

: Increases or decreases the sharpness of the picture from 0 to 10.
Too much sharpness can make image harsh and show more noise as well as line flicker at the edge of object in the picture.

4-4. ACE

: ACE function is same as the digital WDR(Wide Dynamic Range) function.
It is used to improve the quality of the entire picture brightness. It works by adjusting between the brightest and darkest values of the picture and determines the balanced medium. Can set the ACE level OFF, LOW, MIDDLE or HIGH.

4-5. DEFOG (default: OFF)

: This function is used to carry out defog function.
Set to ON, it can be set MODE and LEVEL to eliminate amount of fog on screen.

※ *If the DEFOG is set to ON, the ACE(D-WDR) function will be deactivated.*

4-5-1. MODE

- AUTO: Enhance the foggy video automatically according to status of scene.
- MANUAL: Sets to enhance the foggy video manually regardless of status of scene.

4-5-2. LEVEL: Select LOW, MIDDLE or HIGH. Video quality can be less in normal environments. It is activated only setting to MANUAL in the MODE.

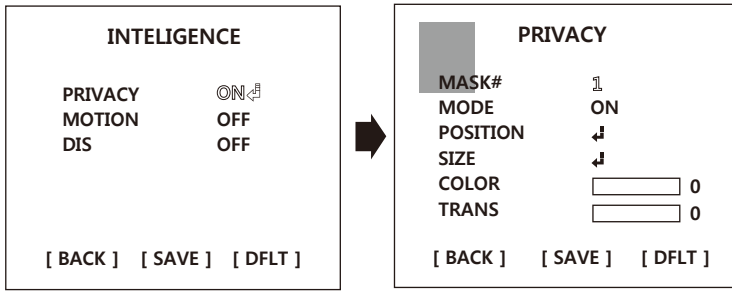
4-6. FREEZE : OFF/ ON

: Sets ON/OFF for enabling/disabling FREEZE function.
It is used to display the still image comming from the camera.

4-7. GAMMA : Selects GAMMA value. 0.45 / 0.55 / 0.65 / 0.75

Operating Instructions

5. INTELIGENCE



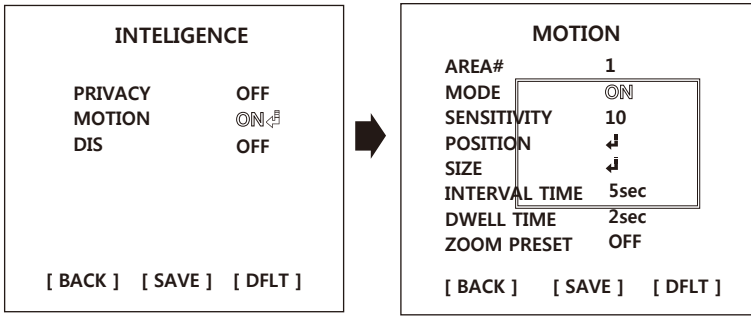
5-1. PRIVACY (default: OFF)

: Sets ON/OFF for enabling/disabling PRIVACY.
Up to 24 privacy areas are available and each area is programmable in position, size, masked color or transparency.

- MASK# : Selects one of MASK AREA1~24 to be adjusted.
- MODE : Masks OFF/ON for the mask area which you selected 'MASK#'
- POSITION : Adjust the mask area X, Y-Axis position which you selected 'MASK#'
- SIZE : Adjusts the mask size which you selected 'MASK#'
- COLOR : Select the color used for masking zone from 0 to 13.
  0: Black, 1~6: Gray scale, 7: White, 8: Red, 9: Green, 10: Blue, 11: Blue-green
  12: Yellow, 13: Magenta
- TRANS: Defines the transparency for the masking zone from 0(100%) to 4(25%).

5-2. MOTION (default: OFF)

: Sets ON/OFF for enabling/disabling MOTION.
It is used to detect motion in the monitored area which can set up to 3.



Operating Instructions

- AREA#: Sets 3 areas for the motion detection AREA1~3 to be adjusted.
- MODE: Sets OFF/ON for the motion detection area which you selected 'AREA#'
- SENSITIVITY: Sets the level of motion sensitivity. Setting to low level is more sensitive about motion detection.
- POSITION: Adjust the motion detection area X, Y-Axis position which you selected 'AREA#'
- SIZE: Adjusts the motion detection size which you selected 'AREA#'
- INTERVAL: Sets the interval time from the starting of motion operation until being ready for the next motion operation.
- DWELL TIME: Sets the duration time of motion detection operation. There is displayed the motion status during the setting time.
- ZOOM PRESET: Sets OFF/ON for the motion zoom preset.

5-3. DIS (default: OFF)

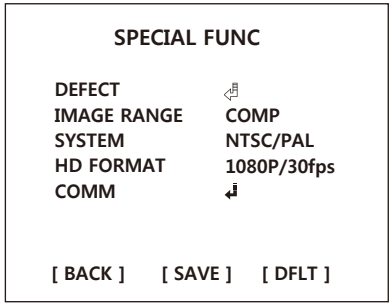
: Sets ON/OFF for DIS(Digital Image Stabilization) function. This function is used to reduce and stabilizes the shaky image from a camera installed in the vibrated area.

5-3-1. RANGE : Setting the image compensation range (10%, 20%, 30%)

5-3-2. FILTER : Setting the sensitivity to hold DIS function in worst case. (LOW, MIDDLE, HIGH)

5-3-3. AUTO C : Setting AUTO centering mode. (LOW, HALF, FULL)

6. SPECIAL FUNC



6-1. DEFECT DET

: Detects and compensates the defective pixels.

Procedure]

1) Close the lens and make the screen dark.
2) Sets the defect LEVEL from 0 to 10.
3) If there are some defective pixels, press the 'MENU' key then the detection starts up.

- LEVEL: Defines the level of detection and low value detects more pixels. Be sure to set the value so that the pixels are uniformly blinking over the entire screen. Too low value will get the bad results because too many pixels are detected as the bad pixels and the maximum number of pixels for compensation will be filled by the upper area.

Operating Instructions

6-2. IMAGE RANGE

: Select image bit range. Setting FULL is 100%, COMP is 75% compressed, or USER is controlling the level from 0 to 32.

6-3. SYSTEM

: Sets the composite video signal NTSC(30/60fps) or PAL(25/50fps).

6-4. HD FORMAT

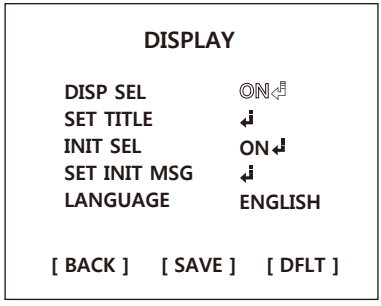
: Select digital output resolution 1080p/30(25)fps, 720p/30(25)fps are available. (1080p/60(50)fps, 720p/60(50)fps are not suppprted)

6-5. COMM : Defines the camera ID, BAUD RATE and PROTOCOL.

- ID: Assigns the camera ID from 1~255 for the comm. address.
- BAUD RATE : Selects serial communication speed. 2400/ 4800/ 9600/ 19200/ 38400/ 57600/ 115200bps
- PROTOCOL : Selects operating protocol PELCO-D/P, UPDATE or VISCA.

(*) It is not supported

7. DISPLAY



7-1. DISP SEL

: Sets ON/OFF the display items

- ID: Sets ON/OFF to display the camera ID defined by 'SPECIAL FUNC >COMM > ID'
- TITLE: Sets ON/OFF to display the camera title(name) by 'DISPLAY > SET TITLE'
- ZOOM RATIO: Sets ON/OFF to display the zoom ratio on the bottom right corner. OZx.x appears during the optical zoom and DZx.x will be displayed by multiplying the optical zoom ratio and the actual digital zoom ratio.
- SYSTEM MSG: Sets ON/OFF to display the motion detection alarm and wait message.

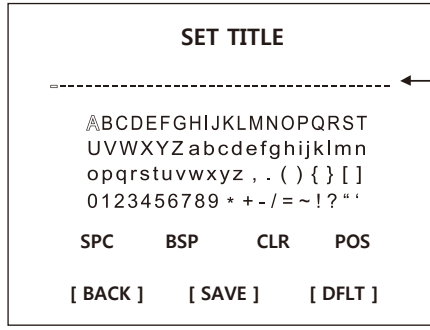
7-2. SET TITLE

: Camera title(name) can be set and edited up to 15 alpha numeric and symbolic characters from ASCII codes(ENGLISH only). ▲,▼,◀,▶ moves the cursor to next input.

Operating Instructions

choose a character and ' ' selects it. The selected characters are added and displayed on the top left Corner and the cursor moves right automatically for next input.

- SPC - Space is inserted when pressed '●'
- BSP – Cursor moves back when pressed '●'
- CLR – Clears all the characters on input line when pressed '●'.
- POS – To be able to set the title position by ▲,▼,◀,▶ and ●.



7-3. INIT SEL

: Sets ON/OFF to display the camera related system.

- ID: Sets ON/OFF to display the camera initial ID
- BAUDRATE: Sets ON/OFF to display BAUDRATE setting by 'SPECIAL FUNC > COMM > BAUDRATE'
- PROTOCOL: Sets ON/OFF to display PROTOCOL setting by 'SPECIAL FUNC > COMM > PROTOCOL'
- VERSION: Sets ON/OFF to display the camera firmware version.
- INIT MSG: Sets ON/OFF to display the initial message defined by 'DISPLAY > SET INIT MSG'

7-4. SET INIT MSG

: Camera initial message can be set and edited.
Refer 7-2. SET TITLE => SET INIT MSG

7-5. LANGUAGE (default: ENG)

: 4 languages are available for ENGLISH, Simplified CHINESE, Traditional CHINESE, JAPANESE

Specifications

ITEM	PAL
Imaging Sensor	1/3" Panasonic Progressive Scan CMOS Sensor
Effective Pixels	1920(H) x 1080(V) x 25p
Scan Frequency	25Hz(V), 18.75Khz(H) Progressive
Video Format	16:9, 1080p/25
Video Resolution	1920x1080(1080p/30fps, 25fps), 1280x720p(720p/30fps,25fps)
TV System	PAL
Shutter Speed	1/25~1/30,000sec
Sync. System	Internal
Min.Illumination	0.5 Lux (Color), 0.1 Lux (BW) / 0.002 Lux (Color, DSS), 0.001 Lux (BW, DSS)
S/N Ratio	More than 50dB with AGC Off
Lens	f=5.1~51mm F1.6~F1.8, Day & Night zoom lens (Optical 10x, Auto Focus&Iris zoom / Digital 32x)
LEDs	Built-in 4pcs x 855nm High power LED
Day & Night	True Day & Night by ICR, Auto / Day / Night / Ext-in
Focus	Auto / One Push / Manual
Focus Distance	0.1 / 1.0 / 3.0 / 5.0 / 10.0m
DSS(Sens-up)	Off / Max x2 ~ x4
White Balance	Auto / One Push / Manual / Indoor / Outdoor
WDR	True WDR
2D+3DNR	Auto / Off / Low / Middle / High
Special Features	PRESET ZOOM, HOME POSITION
Functions	Lens Refresh, E.Zoom, Flickerless, BLC, HLC, H/V/HV Mirror, Sens-up(4x), Defog, Freeze, Privacy Mask, Motion Detection, DIS, AGC, HD Format, Defect Detection
Remote Control	RS-485(Pelco-D/P), UTC by HD-TVI DVR(Pelco-C, Hikvision)
Language	English, Chinese (Simplified / Traditional), Japanese
Video Out	VBS 1Vp-p ± 10%, 75Ω
Installation Temp.	-20ºC ~ +50ºC (Humidity : 30%RH ~ 80%RH)
Operating Temp.	-30ºC ~ +50ºC (Humidity : 30%RH ~ 80%RH)
Operating Power	AC24V~13VA/DC12V=750mA, 9W Circuit protection against faulty connection in power polarity Isolated power supply against ground loop problem.
Housing	IP67, Aluminum Cast, Dual window, One-touch 3-Axis locking bracket, Easy installation pad
Dimension	108mm(W)x100mm(H)x267mm(L)_with Bracket / About 1.35kg

(*) Design and specifications are subject to change for product improvements without prior notice.

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Version 09/2015